

**Notice of Allowability**

Application No.

10/505,245

Examiner

Chukwuma O. Nwaonicha

Applicant(s)

BENJE ET AL.

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to \_\_\_\_.
2. ☒ The allowed claim(s) is/are 1-7.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_

  
JOHANN RICHTER  
SUPERVISORY PATENT EXAMINER  
GROUP 1621

**DETAILED ACTION**

Claims 1-7 are pending in the application.

**DETAILED ACTION**

***Current Status***

Claims 1-7 are pending in the application.

***Reason For Allowance***

The following is an examiner's statement of reasons for allowance: A process for the production of high-purity 1,2-dichloroethane using a circulating stream of liquid reaction fluid which mainly consists of 1,2-dichloroethane and a catalyst, in which at least ethylene and chlorine are admixed to the reaction fluid, wherein a gas stream with chlorine as the main constituent is dissolved in a portion of the reaction fluid, which is essentially free of dissolved ethylene, the gaseous constituents non-dissolved in this solution, being removed from the said solution by means of a centrifugal gas separator as device for gas separation and the solution freed from non-dissolved gas constituents being brought into contact with solute ethylene supplied for this purpose, wherein all the variables are as defined in the claims. The process was neither found to be obvious nor anticipated by the prior art of record.

The closest prior art is Piotrowski et al., {US 4,783,564}. Piotrowski et al. disclose a method for the preparation of 1,2-dichloroethane in a reactor by the reaction of gaseous ethylene with chlorine dissolved in a hot catalyst-containing, liquid circulating stream that is under elevated pressure and consisting of chlorinated hydrocarbons. All of the chlorine is absorbed outside of the reactor, at a temperature

Art Unit: 1621

above 90°C, a pressure of more than 4 bar, and an average residence time of less than 120 seconds. The reaction take place at the phase boundary surface of a dispersion produced from gaseous ethylene and the chlorine-containing, liquid, circulating stream, at an energy dissipation density of 0.05 to 1000 kilowatts per cubic meter, a temperature of 90° to 200°C, and a pressure of 7 to 20 bar.

Piotrowski et al. method for the preparation of 1,2-dichloroethane differs from the instantly claimed process in that Piotrowski et al. do not teach a process wherein a centrifugal gas separator is use as device for gas separation. Another difference between applicants claimed invention and Piotrowski et al. is that applicants claim a process that employs incineration of residues while Piotrowski et al. is silent about this step. Furthermore, another difference between applicants claimed invention and Piotrowski et al. is that applicants claim a process wherein at least part of the gaseous constituents that have been removed from the chlorine-containing solution by the gas separator are admixed to the reaction fluid at a point of the reaction section while Piotrowski et al. is silent about this step. Additionally, the Examiner notes that applicants claimed invention differs from Piotrowski et al. in that applicants claims a process wherein at least part of the gaseous constituents removed from the chlorine-bearing solution by means of the gas separator are fed to a facility for secondary reaction, this facility being operated at a lower temperature than applied to the main reaction while Piotrowski et al. omits this step. These differences are not readily apparent and would not have been suggested to one of ordinary skill.

**All claims (1-7) are allowed.**

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Patent Examiner  
Art Unit: 1621

Application/Control Number: 10/505,245

Page 5

Art Unit: 1621



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